

EH Resident Competency 1.24

Competency 1.24 EH Residents shall demonstrate a familiarity level knowledge of the safety hazards associated with walking and working surfaces.

1. Supporting Knowledge and Skills

- a. Describe the general requirements for safe operation of the following work areas or activities:
 - Aisles and passageways
 - Floors and wall openings and holes
 - Housekeeping
- b. Describe the safety requirements for stair and handrail construction.
- c. Describe the safety requirements for construction, care, and use of ladders.
- d. Describe the general safety requirements for construction, overhead protection, and use of scaffolds.

2. Self-Study Activities (corresponding to the intent of the above competency)

Below are two web sites containing many of the references you may need.

Web Sites		
Organization	Site Location	Notes
Department of Energy	http://wastenot.inel.gov/cted/stdguido.html	DOE Standards, Guides, and Orders
OSHA	http://www.osha-slc.gov/	OSHA documents and search engine
U.S. House of Representatives	http://law.house.gov/cfr.htm	Searchable Code of Federal Regulations

Read the summary section below.

Review 29 CFR 1910, Subpart D, *Walking-Working Surfaces*.

Review 29 CFR 1926, Subpart H, *Materials Handling, Storage, Use, and Disposal*.

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Review 29 CFR 1926, Subpart M, *Fall Protection*.

Review 29 CFR 1926, Subpart C, *General Safety and Health Provisions*.

Review 29 CFR 1926, Subpart L, *Scaffolding*.

EXERCISE 1.24-A Describe the general occupational safety-related requirements related to the following work areas or activities:

- Aisles and passageways
- Floors and wall openings and holes
- Housekeeping

Review 29 CFR 1926, Subpart X, *Stairways and Ladders*.

EXERCISE 1.24-B While referring to 29 CFR 1910, Subpart D, describe the safety requirements for stair and handrail construction. Include each of the following in your discussion.

Handrails

- Protection for floor openings
- Protection for wall openings and holes
- Protection of open-sided floors, platforms, and runways
- Stairway railings and guards

Stairs

- Where stairs are required
- Stair strength
- Stair width
- Angle of stairway rise
- Stair treads
- Stairway platforms
- Vertical clearance

EXERCISE 1.24-C Using Title 29 CFR 1910, Subpart D, identify the topics covered by safety requirements for construction, care, and use of ladders.

Review 29 CFR 1926, Subpart L, *Scaffolding*.

EXERCISE 1.24-D Using 29 CFR 1910, Subpart D, identify at least five types of scaffolds covered.

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3. Summary

Title 29 CFR covers a broad spectrum of walking and working surfaces as well as a variety of safety measures. Part 1910, Subpart D, *Walking-Working Surfaces*, provides that coverage for operating facilities, while these topics related to construction projects are covered by the following Subparts of Part 1926:

- H -- *Materials Handling, Storage, Use, and Disposal*
- M -- *Floor and Wall Openings*
- C -- *General Safety and Health Provisions*
- X -- *Stairways and Ladders.*

4. Exercise Solutions

EXERCISE 1.24-A Describe the general occupational safety related requirements related to the following work areas or activities:

- Aisles and passageways
- Floors and wall openings and holes
- Housekeeping

ANSWER 1.24-A

General Safety Requirements	
Work Area/Activity	Requirements
Aisles and passageways	<ul style="list-style-type: none">• Where mechanical handling equipment is used, sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made.• Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard.• Permanent aisles and passageways shall be appropriately marked.
Floors and wall openings and holes	<ul style="list-style-type: none">• Covers and/or guardrails shall be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, etc.

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General Safety Requirements	
Work Area/Activity	Requirements
Housekeeping	<ul style="list-style-type: none">• All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.• The floor of every workroom shall be maintained in a clean and, so far as possible, dry condition.• Where wet processes are used, drainage shall be maintained, and false floors, platforms, mats, or other dry standing places should be provided where practicable.• To facilitate cleaning, every floor, working place, and passageway shall be kept free from protruding nails, splinters, holes, or loose boards.

EXERCISE 1.24-B While referring to 29 CFR 1910, Subpart D, describe the safety requirements for stair and handrail construction. Include each of the following in your discussion.

Handrails

- Protection for floor openings
- Protection for wall openings and holes
- Protection of open-sided floors, platforms, and runways
- Stairway railings and guards

Stairs

- Where stairs are required
- Stair strength
- Stair width
- Angle of stairway rise
- Stair treads
- Stairway platforms
- Vertical clearance

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ANSWER 1.24-B

Safety Requirements for Stairs and Handrails	
Handrails	Requirements
NOTE: In some of the following cases, guards or barriers other than or in addition to handrails may be used. In general, however, handrails shall exist to provide guarding in the following situations.	
Protection for floor openings	<ul style="list-style-type: none">• Stairway floor openings• Ladderway floor openings or platforms• Hatchways and chute floor openings• Skylight floor openings and holes• Pits and trapdoor floor openings• Manhole floor openings• Temporary floor openings• Other floor holes into which persons can walk
Protection for wall openings and holes	<ul style="list-style-type: none">• Wall openings• Chute wall openings• Window wall openings at a stairway landing, floor platform, or balcony• Temporary wall openings• Where there is a hazard of materials falling through the wall hole
Protection of open-sided floors, platforms, and runways	<ul style="list-style-type: none">• Open-sided floors or platforms• Runways• Open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment
Stairway railings and guards	<ul style="list-style-type: none">• Flight of stairs• Winding stairs

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Safety Requirements for Stairs and Handrails	
Stairs	Requirements
NOTE: In some of the following cases of fixed, general industrial stairs, guards other than or in addition to handrails may be used. In general, however, handrails shall exist to provide guarding in the following situations.	
Where stairs are required	<ul style="list-style-type: none">• For access from one structure level to another where operations necessitate regular travel between levels• For access to operating platforms at any equipment that requires attention routinely during operations• Where access to elevations is daily or at each shift for such purposes as gauging, inspection, regular maintenance, etc., where such work may expose employees to acids, caustics, gases, or other harmful substances, or for which the carrying of tools or equipment by hand is normally required.• Spiral staircases shall not be permitted except for special, limited usage and secondary access situations where it is not practical to provide a conventional stairway.
Stair design	<ul style="list-style-type: none">• Stair strength• Stair width• Angle of stairway rise• Stair treads• Stairway platforms• Vertical clearance

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EXERCISE 1.24-C Using 29 CFR 1910, Subpart D, identify the topics covered by safety requirements for construction, care, and use of ladders.

ANSWER 1.24-C

Safety Requirements for Ladders	
Portable Wood Ladders	Topics of Requirements
Construction	<ul style="list-style-type: none">• Materials/types defined• Length of each type• Stepladder step spacing• Width between side rails of stepladders• Holding the stepladder open
Care	<ul style="list-style-type: none">• General condition maintenance• Bearing lubrication• Rope condition• Safety feet• Inspections/discarding of defective ladders• Rung condition
Use	<ul style="list-style-type: none">• Placement of the ladder• Use of ladders• Splicing together short ladders to provide longer sections prohibited• Climbing on the bracing on the back legs of step ladders prohibited
Portable Metal Ladders	Requirements
Construction	<ul style="list-style-type: none">• Types• Metal selection• Stepladder step spacing• Slip-resistance of rungs and steps• Width between side rails of stepladders• Length of each type• Positive stops• Holding the stepladder open
Care	<ul style="list-style-type: none">• General condition maintenance• Inspections/repair• Free of slippery materials

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Safety Requirements for Ladders	
Portable Metal Ladders	Requirements
Use	<ul style="list-style-type: none">• Placement of the ladder• Use of ladders• Splicing together short ladders to provide longer sections prohibited
Fixed Ladders	Requirements
Construction	<ul style="list-style-type: none">• Design loading• Design stresses• Design features• Clearance• Cages and wells• Landing platforms• Extensions• Grab bars• Safety devices• Pitch
Care	<ul style="list-style-type: none">• General condition maintenance• Inspections

EXERCISE 1.24-D Using 29 CFR 1910, Subpart D, identify at least five types of scaffolds covered.

ANSWER 1.24-D Any five of the following types of scaffolds constitute the correct answer.

- Wood pole
- Tube and coupler
- Tubular welded frame
- Outrigger
- Masons' adjustable multiple-point suspension
- Two-point suspension (swinging scaffolds)
- Stone setters' adjustable multiple-point suspension
- Single-point adjustable suspension
- Boatswains' chairs
- Carpenters' bracket
- Bricklayers' square
- Horse
- Needle beam

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- Plasterers', decorators', and large area
- Interior hung
- Ladder-jack
- Window-jack
- Roofing brackets
- Crawling boards or chicken ladders
- Float or ship
- Manually propelled mobile ladder stands and scaffolds
- Other working surfaces